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Post traumatic stress disorder and the benefits of guided mental imagery in treatment

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Abstract

Seventy percent of adults in the United States will experience at least one traumatic event in their lifetime. Out of these individuals, 25% will develop post-traumatic stress disorder (PTSD). This disorder is characterized by distinct physiological changes as well as notable psychological symptoms. If left untreated or improperly treated, PTSD exacts significant costs in individual suffering, quality of life, interpersonal relationships, productivity, and increased use of medical and psychiatric services.

The purpose of this paper is to present comprehensive information about PTSD and its impact on those who suffer from the disorder. This paper will also provide a brief synopsis of traditional treatment, and explore the benefits of utilizing guided mental imagery as an essential component of effective treatment.

POST TRAUMATIC STRESS DISORDER AND THE BENEFITS OF GUIDED MENTAL
IMAGERY IN TREATMENT

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Lisa A. Langstraat

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Abstract

Seventy percent of adults in the United States will experience at least one traumatic event in their lifetime. Out of these individuals, 25% will develop posttraumatic stress disorder (PTSD). This disorder is characterized by distinct physiological changes as well as notable psychological symptoms. If left untreated or improperly treated, PTSD exacts significant costs in individual suffering, quality of life, interpersonal relationships, productivity, and increased use of medical and psychiatric services. The purpose of this paper is to present comprehensive information about PTSD and its impact on those who suffer from the disorder. This paper will also provide a brief synopsis of traditional treatment, and explore the benefits of utilizing guided mental imagery as an essential component of effective treatment.

Post Traumatic Stress Disorder and the Benefits of Guided Mental Imagery in Treatment

Post-Traumatic stress disorder (PTSD) is a psychiatric disorder that can occur after encountering or witnessing a traumatic event that is believed to hold a threat of injury or death (van der Kolk, McFarlane, & Weisaeth, 1996; Yehuda & Davidson, 2000). It is marked by feelings of terror and helplessness. According to the National Center for Post Traumatic Stress Disorder [NCPTSD](n.d.), PTSD is the fourth most common psychiatric disorder. Statistics indicate that an estimated 70% of adults in the United States will be exposed to a traumatic event at least once in their lifetime, of these individuals, 25% will develop PTSD (Yehuda & Davidson, 2000). As shown in Table 1, the estimated risk of developing PTSD following different types of traumatic events varies (NCPTSD, n.d.).

Table 1

Estimated Risk of Developing PTSD Following Traumatic Events

Traumatic Event	Percentage developing PTSD
Rape	49%
Severe beatings or physical assault	31.9%
Other sexual assault	23.7%
Serious accident or injury	16.8%
Shootings or stabbings	15.4%
Sudden, unexpected death of loved one	14.3%
Child's life-threatening illness	10.4%
Witness to killing or serious injury	7.3%

Note: Data from the National Center for Post Traumatic Stress Disorder website, 2005.

Professionals such as police officers, firefighters, counselors, and medical personnel, who work with trauma victims are also at risk for developing PTSD. This type of trauma, called vicarious traumatization, occurs from frequent exposure to or witnessing of the horror, suffering, and loss connected with traumatic experiences. There are clear physiological changes and psychological symptoms associated with PTSD (Naparstek, 2004; van der Kolk, McFarlane, & Weisaeth, 1996; Levine, 2005; Bremner, et al., 1995.) It is also complicated by the existence of other mental disorders such as depression, anxiety, substance abuse, difficulties in memory and cognition, and other physical and mental health problems (APA, 2000). Impairment from this disorder often leads to other wide-spread life difficulties in life such as job-related instability, reduced quality of life, unstable relationships with others, divorce, and problems with the parenting role (Yehuda & Davidson, 2000; van der Kolk, et al., 1996).

The purpose of this research paper is to present comprehensive information about PTSD, and its multidimensional impact on those who suffer from the disorder. This paper will also provide a brief synopsis of traditional treatment, and explore the benefits of utilizing guided mental imagery as an essential core component to treating PTSD.

Diagnostic and Statistical Manual of Mental Disorders Criteria

Diagnostic Criteria and Symptoms

The Diagnostic and Statistical Manual of Mental Disorders, fourth edition text revision (DSM IV-TR) (APA, 2000) classifies PTSD as an anxiety disorder distinguished by certain diagnostic symptoms. The first criteria of the DSM IV-TR (APA, 2000), is that the person must have been exposed to a traumatic event that involved an “actual or perceived” threat of serious injury, or threat of death or threat to the “physical integrity of

self or others". Table 2 illustrates the remaining criteria for a diagnosis of PTSD, as required by the DSM-IV TR (APA, 2000, p. 468).

Table 2

Partial criteria for diagnosis of PTSD.

1. The traumatic event must be persistently re-experienced in one or more of the following ways:

- a). Intrusive distressing recollections of the event.
 - b). Distressing dreams
 - c). Acting or feeling as though the event were recurring such as through illusions, hallucinations, and/or dissociative flashbacks.
-

2. The individual must also exhibit some type of persistent avoidance of stimuli associated with the trauma and a numbing of responsiveness as indicated by three or more of the following:

- a). Efforts to avoid thoughts, feelings, or discussion associated with the trauma.
 - b). Efforts to avoid activities, places, and/or people that provoke recollections of the trauma.
 - c). Inability to recall an important aspect of the trauma.
 - d). Markedly diminished interest or participation in important activities.
 - e). Feeling of being detached or alienated from others
 - f). Restricted range of emotions
 - g). A sense of a foreshortened future
-

3. The person experiences increased arousal as evidenced by two or more of the following:

- a). Difficulty falling or staying asleep.
 - b). Irritability or angry outbursts
 - c). Difficulty concentrating
 - d). Hypervigilance
 - f). An exaggerated startle response
-

4. In addition to the afore mentioned criteria, the symptoms must have been present for more than one month, and cause significant suffering or problems in social, occupational, or other important aspects of life

Note. From "Diagnostic and Statistical Manual of Mental Disorders Text Revision, 4th ed. American Psychiatric Association, 2000. Washington, DC.

Co-occurring Disorders

As will be discussed in further detail later in this paper, the effects of trauma may lead to a wide variety of physical, emotional, mental, and behavioral problems. The DSM IV-TR (APA, 2000) indicates that those with PTSD may have an increased risk for panic disorder, agoraphobia, obsessive-compulsive disorder, various phobias, major depression, somatization disorder, and substance abuse disorders. Psychiatrist and author Judith Herman (1992) strongly believed that PTSD might underlie some of the more complicated problems that are seen in mental health settings. She coined the term complex post-traumatic stress disorder to describe a syndrome that is a consequence of experiencing long term and repeated episodes of trauma such as childhood abuse and repeated exposure to domestic violence. She also proposed that complex PTSD might

underlie many personality disorders, especially Borderline personality disorder. She further stressed the convolution associated with the presenting symptoms of this type of survivor. It is often difficult for clinicians to make the connection between the presenting problems and symptoms and a past trauma experience. This is frequently complicated because these client's often present with "characteristic personality changes including deformations of relatedness and identity" (pg 119).

Understanding Trauma

The Unfolding Definition of Trauma and Traumatic Events

The in-depth scientific study of trauma began approximately twenty years ago (van der Kolk, et al., 1996). During this time span, there have been many debates about how to define trauma, as well as what types of events comprise a traumatic event (Yehuda & Davidson, 2000). PTSD was officially recognized as a formal psychiatric diagnosis in 1980. Formalizing the diagnosis spurred greater investigation and research into the disorder, which lead to clearer understanding about the prevalence and impact of traumatic stress (Yehuda & Davidson, 2000). Information gathered from numerous studies and advances in neurobiology have paved the way for developing progressively more effective methods of treating PTSD.

The intention of the diagnosis of PTSD, as it originally appeared in the Diagnostic and Statistical Manual of Mental Disorders 3rd edition (DSM-III) (APA, 1980), was to officially recognize the fact that extreme psychological trauma could result in ongoing impairment. Originally, a traumatic event was described as an "identifiable stress" that would produce considerable symptoms of suffering in "almost everyone" (APA, 1980). This definition was an attempt to make a distinction between traumatic events and other

types of stressful life events such as bereavement for example (van der Kolk, et al., 1996). This definition portrayed traumatic events as those that were essentially out of the scope of normal life experiences. However, later studies of events that were assumed to cause PTSD (such as interpersonal violence and disasters) discovered that these forms of traumatic events were rather common in our society (Helzer, Robins, and McEvoy, 1987; Davidson, Hughes, and Blazer, 1991), thus challenging the idea that traumatic events were beyond the range of normal life experiences. Furthermore, it became clear that PTSD occurred in only some of those who were exposed to traumatic events (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Therefore, the claim that a traumatic event would cause considerable symptoms “in almost everyone” (APA, 1980) was likewise erroneous. In response to these issues, the DSM-IV (APA, 1994), attempted to further clarify the definition of PTSD by limiting the range of traumatic events to those that potentially caused a “threat to life or physical integrity”. More importantly, the DSM IV (APA, 1994) stressed the role of the individuals perception of the event as being life threatening and having “the subjective characteristics of fear, helplessness, and/or horror” (p. 424). Today a traumatic event is defined as one that overwhelms the individual’s “perceived” ability to cope, and leaves that person fearing death, mutilation, or serious mental injury (Naparstek, 2004; Yehuda & Davidson, 2000).

The types of events that are thought to give rise to PTSD can be defined in two general categories: 1) those involving interpersonal violence, and 2) those involving potentially life-threatening accidents and catastrophes, either “man-made” or “naturally occurring” (Yehuda & Davidson, 2000). A review of the trauma literature reveals numerous examples of potentially traumatic events (APA, 1994; Yehuda & Davidson,

2000; Naparstek, 2004; Levine, 2005; van der Kolk, et al., 1996; Herman, 1992; and Rothschild, 2000). These events can be divided into two main categories, the obvious, and those that are less obvious. Obvious traumatic events include violent personal attacks, severe childhood emotional, physical or sexual abuse, torture, war, disasters, and being kidnapped or held hostage. Less obvious events such as a minor automobile accident, invasive dental and medical procedures, falls, and failures of anesthetic during surgery may also be traumatizing to some people. The central characteristic of traumatic events is their ability to generate an intense psychological response. It is the threat of injury or death, and the associated feelings of fear and helplessness that sets off the biological stress reaction that may lead to PTSD (Naparstek, 2004; van der Kolk et al., 1996). It is important to note that traumatic events can also be categorized as single-blow or repeated. The traumatic events that result in the most serious mental health problems are those that include severe forms of abuse, is "prolonged in nature", and is "deliberately inflicted" by people (especially a close relative or caregiver) and is marked by a sense of helplessness, and fear of injury or death (Yehuda & Davidson, 2000).

Individual Risk Factors

Although recent estimates suggest that the majority of the population will experience at least one traumatic event during their lifetime, only 25% of trauma survivors are believed to develop PTSD (Yehuda & Davidson, 2000). Factors of resilience and vulnerability appear to play some part in determining who develops PTSD and who does not. An individual's response to trauma is influenced by a combination of biological, social, and individual factors (Naparstek, 2004). In order to better understand the nature of PTSD and therefore components of effective treatment, it is important to understand

how individual factors may increase vulnerability. The literature on trauma highlights various survivor traits that have a significant impact on both the prevalence and severity of symptoms of PTSD (Naparstek 2004; Herman 1992; van der Kolk, et al., 1996).

Differences in gender, age, ethnicity, psychology, personal history, neurobiological wiring, coping behavior, and unique social circumstances comprise either increased risk or protective factors.

Women and children.

Women and children appear to be particularly at risk for developing (Yehuda & Davidson, 2000; Naparstek, 2004). Women have repeatedly been found to be universally more vulnerable to PTSD than men. In the general population, “10-12% of women will develop PTSD over their lifetime, as compared with 5% of men” (Naparstek, 2004, pg 54). This vulnerability exists even though men encounter more traumatic events over a lifetime than women. Studies looking at the general population of British students, Dutch adults trapped in a fire, psychiatric inpatients in the United States, and Dutch eighth graders all support this vulnerability (Purves & Erwin, 2002; Maes, Delmure, Myrtle, Altamura, 2001; Neria, Bromet, Sievers, Lavelle, Fochtmann, 2002; Elklit, 2002). A Canadian survey of trauma exposure revealed that women could be as much as six times as likely to develop PTSD once exposed to a comparable trauma (Fullerton et al., 2001). Furthermore, children and women of childbearing years are more likely to freeze and dissociate when experiencing helplessness and horror (Naparstek, 2004). Both freezing and dissociation are associated with the development of PTSD (van der Kolk, et al., 1996; Naparstek, 2004). Commonly, children are more at risk for PTSD than adults (Jordan, 2001). Studies show that the younger the child, the more likelihood of

developing PTSD and the more severe the symptoms (Jordan, 2001; Naparstek, 2004).

Youth has been found to be a contributing risk factor in developing PTSD even into early adulthood (Naparstek, 2004). A study of risk factors showed that the younger a soldier's age when encountering combat stress, the greater the risk of developing PTSD (Koenen, et al., 2002). When considering the male female ratio of developing PTSD in young children, the risk remains much higher for females (Naparstek, 2004).

Previous history:

Individuals with a previous history of psychological problems or a family history of mental illness are at greater risk for developing PTSD (Naparstek, 2004; Yehuda & Davidson, 2000). Major depression, various mood disorders, anxiety, panic attacks, and phobias in the survivor's personal or familial history increase vulnerability across cultures. A previous history of childhood abuse is also strongly correlated with the development of PTSD (Koenen, et al., 2002; Naparstek, 2004). Individuals who have experienced previous traumas, people who experience additional traumas immediately following an original traumatic event, and those experiencing extra life stresses, either before or after the traumatic event, are another strong predictor of PTSD (Naparstek, 2004).

Terr (1994) distinguished two types of trauma victims. Type I and Type II. Type I refers to individuals who have experienced a single traumatic event. Type II refers to individuals who have experienced multiple traumas. Rothschild (2000) further categorized Type II into two subcategories, Type IIA and Type IIB. Type IIA are individuals with multiple traumas who have had a secure background, and consequently have developed resources that better equip them to cope with each traumatic event. Type

IIB individuals however, have been overcome by the traumatic events to the point of being unable to sort through and cope effectively. Type IIB clients can also be divided into two additional categories, Type IIB(R) and Type IIB (nR). Type IIB(R) clients have a stable background, but have been bombarded with complex traumatic experiences so overwhelming that they have lost their resilience (Rothschild, 2000). Type IIB (nR) are individuals who have not developed resources for resilience (Rothschild, 2000).

Understanding the differences between these types of victims and their unique needs has significant implications in regards to designing effective treatment programs.

Level of education.

Level of education is another factor that plays a part in being vulnerable to PTSD. Individuals with less education are at greater risk for developing PTSD than those with higher education (Koenen, et al., 2002). Perry, as reported in *Invisible Heroes* (Naparstek, 2004), suggests that education develops the cortex in the brain in a way that creates greater abstract thinking and the ability to curb impulses in the primitive parts of the brain that are affected by traumatic experiences.

Ethnicity and risk.

Studies also show a relationship between ethnicity and risk for PTSD (Perilla , Norris, & Lavizzo, 2002; Mohan, Isaac & Janca, 2002). A study consisting of 400 residents of Florida who were affected by Hurricane Andrew contrasted Whites, Hispanics, and African Americans in regards to developing PTSD. The study showed that Caucasians had the lowest rate of PTSD (15%), followed by African Americans (23%), and Latino's (38%) (Perilla, Norris, and Lavizzo, 2002). Similarly, post 9/11 surveys in New York

revealed that Hispanics were more affected by PTSD than the general population (Mohan, Isaac, & Janca, 2002).

Social support.

Finally, a lack of social support is also a strong predictor of PTSD (van der Kolk, et al., 1996). Single individuals are at greater risk than those who are married, as are those individuals who lack a significant support system (Naparstek, 2004). A meta-analysis consisting of seventy-seven studies revealed that the lack of a social support system after experiencing a trauma is a “stronger predictor for PTSD than a person’s pre-trauma situation” (Naparstek, 2004, pg 59-60).

Trauma Reactions

Studies reveal that individual reactions at the time of exposure to trauma can be strong predictors of PTSD (Naparstek, 2004). Factors such as panic, dissociation, biochemical abnormalities, a sense of control, self-blame, and resulting health problems are all significant responses in the development of PTSD (Naparstek, 2004; van der Kolk, et al., 1996). Individuals who experience panic, acute stress reactions, and dissociation during exposure to the traumatic event have a greater likelihood of developing PTSD (Naparstek, 2004).

Dissociation plays an important role in PTSD (Naparstek, 2004; van de Kolk, et al., 1996). Dissociation is a condition in which a person disconnects from their awareness of physical and emotional sensations (Naparstek, 2004). This state is activated by stress hormones and is triggered when there is a belief that there is no escape from terror or pain. When in a dissociative state, individuals feel detached from reality as though they were watching events happening to someone else (Naparstek, 2004). During a

dissociative episode, the memory is impaired, and there is often a distorted sense of time and place. Dissociation is associated with cortisol; a hormone produced in the adrenal glands and set off by stress. Cortisol is associated with many of the physical effects of trauma, as well as, the health problems found in those who suffer from PTSD. Many studies measuring individuals with PTSD show irregularities in the body's ability to regulate this stress-induced fight flight hormone (Yehuda & Davidson, 2000; Goleman, 1992; van der Kolk, et al., 1996; Levine, 2005). It is hypothesized that people have innate differences in how they respond to overwhelming stress. Some individuals are biologically wired to be more prone to dysregulated cortisol levels. Therefore, some are predisposed to dissociation and therefore to developing PTSD when encountering traumatic events (Naparstek, 2004; Goleman, 1995, Rothschild, 2000).

Lastly, individuals who experience a sense of effectiveness and control over events when facing a traumatic situation tend to manage the situation and aftereffects better than those who freeze and/or experience a sense of helplessness (Levine, 2005, Naparstek, 2004). Similarly, those who are self-blaming and/or hold other negative beliefs about their role in the trauma have a greater risk of developing PTSD (Naparstek, 2004).

emotions and stress **The Effects of Trauma**

Trauma and the Brain

Research in development and neurobiology reveals that many brain and hormonal changes may occur because of trauma (Goleman, 1992; Levine, 2005; van der Kolk et al., 1996). These changes are believed to play a significant role in many of the difficulties associated with PTSD such as memory, learning, problematic behaviors, difficulty regulating emotions, and mental difficulties (NCPTSD Fact Sheet, n.d.; Goleman, 1992).

In order to fully appreciate the effects of trauma, it is necessary to examine the architecture of the human brain and how traumatic events are processed. According to researcher Paul McLean's triune model (as cited in Goleman, 1995), the human brain is made up of three major areas. The earliest developed part of the brain, sometimes referred to as the reptilian brain or survival brain, is responsible for respiration, heart rate, and other survival operations. Functions in this part of the brain are "instinctual and unconscious" (Goleman, 1995). Humans, like all mammals, have brains that join the reptilian core with a more complex structure called the limbic system. This part of the brain is the main site of emotions and complex social behaviors. The third part of the brain is the neocortex, and is often referred to as the thinking brain. Through evolution, the neocortex grew out of the limbic system, and is the part of the brain that is responsible for logical analysis and conscious decision-making (Goleman, 1995).

The limbic system is made of a network of elaborate circuitry that is highly attuned to signs of potential danger, and when faced with a situation perceived as threatening triggers an immediate body-wide response (Goleman, 1995; Naparstek, 2004; Levine, 2005, Seaward, 2004). The amygdala is the part of the limbic system responsible for emotions and all emotional memory. Emotional experiences are imprinted on the amygdala and stored there as memory. The more intense the emotional experience, such as a traumatizing event, the deeper and more powerful the imprint (Goleman, 1995). The amygdala functions separately from the conscious, thinking divisions of the brain, and acts unconsciously and immediately when triggered by the possibility of danger (Naparstek 2004; Goleman, 1995). The amygdala employs an associative-method of appraising incoming stimuli for a match with what has been experienced as dangerous in

the past. When a match is made, the amygdala triggers a neural alarm that activates the fight-flight stress response within the body. Because information reaches the limbic system before it has an opportunity to reach the neocortex, “most, if not all”, of this process is unconscious (Goleman, 1995; Goleman, 1992). When an emergency response is triggered by the amygdala, it initiates a biochemical cascade throughout the body. First, the hypothalamus is jolted into producing corticotrophin-releasing factor (CRF) which signals the pituitary and adrenal glands to flood the bloodstream with stress hormones: adrenaline, norepinephrine, and cortisol (Seaward, 2004; Goleman, 1995; Levine, 2005). These hormones rally the body to deal with the threat by either fighting or running away. Normally, when the threat of danger has passed, the parasympathetic nervous system takes over to calm the aroused body systems. This occurs by the release of acetylcholine, which slows the heart rate, lowers blood pressure, and moves blood away from the muscles and back to the organs in the center of the body (Goleman, 1995; Naparstek, 2004). Under normal circumstances, the body shifts in and out of various stages of “excitation and relaxation” throughout the day (Naparstek, 2004; Seaward, 2004).

However, there is another biologically driven response to danger that can upset this balancing act between the sympathetic and parasympathetic nervous system (Naparstek, 2004; van der Kolk et al., 1996; Levine, 2005). This response is called the freeze response and is employed when there is no escape from danger through fight or flight. This “instinctual and unconscious” reflex occurs when an animal is about to be caught by a predator (Levine, 2005). The animal collapses and becomes completely limp. This state of suspended animation is accompanied by enormous biochemical extremes that instantly cycle from an intensely aroused state to a “biologically enforced vegetative state”

(Naparstek, 2004). The body releases massive doses of painkilling endorphins, tense muscles collapse and become almost paralyzed, blood pressure plummets, and the speeding heart slows to a “barely perceptible” rate (Seaward, 2004; Levine, 2005). Interestingly, if the immobilized animal survives the threat, they engage in a series of “energy discharging” movements (Levine, 2005). When the environment is deemed safe, almost all immobilized animals immediately begin to tremble and shake. Furthermore, their body movements resemble the last act of running or other motor movements that were being used prior to the freeze response taking over (Levine, 2005; Naparstek, 2004).

Humans also freeze when faced with an overwhelming life-threatening situation where escape cannot be gained through fighting or fleeing (Levine, 2005; Naparstek, 2004). However, humans lack the “adaptive discharge response” seen in animals (Levine, 2005). When humans freeze, they dissociate, which as already discussed, is one of the single strongest predictors of developing PTSD. Dissociation is believed to lay the groundwork for “imprinting the trauma more deeply in to the circuitry of the brain, and encoding it into unconscious memory and its arousal patterns of the central nervous system” (Naparstek, 2004, pg 76), thus creating the conditions that can lead to PTSD.

Under normal circumstances, the body automatically returns to a homeostatic balance (Levine, 2005; Naparstek, 2004). However, numerous studies measuring individuals with PTSD show a significant difference in the body’s ability to regulate cortisol, the stress-induced fight-or-flight hormone (Mason, 2002; Yehuda & Davidson, 2000; Naparstek, 2004). Investigations of recently traumatized adults suffering from acute stress reactions show the presence of excessive cortisol levels, which relate to hypervigilance, agitation, and irritability (Naparstek, 2004). Normally, these elevated responses tend to even out

over a few weeks or months once the stressor is passed. However, adult trauma survivors with chronic PTSD will usually display abnormally low cortisol levels, which are consistent with the symptoms of numbing and avoidance (Naparstek, 2004). A longitudinal study of Vietnam veterans with chronic and severe PTSD shows a tendency of both over and under compensation in the production of cortisol (Mason, 2002). The survivors usual coping mechanisms of avoidance and dissociation is overruled when encountering stress, at which time cortisol levels shoot up. Therefore, what would normally be a comparatively small stressor to most people triggers a dramatic biochemical surge in someone with PTSD (Mason, 2002; Naparstek, 2004). This pattern of jumping back and forth between abnormally high and abnormally low levels of cortisol production has been supported by other studies (Mason 2002; Carrion 2002).

MRI studies of long-term trauma survivors with PTSD show a significant decrease in the size of the hippocampus, the cognitive part of the brain that is “responsible for analyzing, associating, comparing and contrasting current events with past events” (Naparstek, 2004, pg 87). Shrinkage of the hippocampus has been shown in Vietnam combat veterans and female survivors of childhood sexual abuse with PTSD (Bremner, et al., 1995). Positron Emission Tomography (PET) scans show that provoked arousal produces a rise in metabolic activity in the right hemisphere of the brain, specifically the amygdala and the parts of the limbic system connected with trauma memories and emotions (Naparstek, 2004). These studies also show increased activity in the right visual cortex when flashbacks are triggered from discussing trauma related matters (Rausch et al., 1996). Furthermore, the parts of the brain responsible for speech also show reduced activity. This supports the difficulty many survivors have in verbalizing feelings and

emotions related to the trauma (Naparstek, 2004). Researchers have also examined the anterior cingulate, the area of the brain responsible for calming the hyperactive amygdala, and found that it did not provide the normal brake to the arousal response in individuals with PTSD (Yehuda & Davidson, 2000).

Physical Effects of Trauma

Naparstek (2004) states there is no other emotional condition that produces the distinctive dysregulated profile of neurophysiology and biochemistry as that of PTSD. She further proposes that this unique profile demonstrates without deniability the intrinsic connection between the mind and the body.

People diagnosed with PTSD experience more physical health problems than the average person (Naparstek, 2004; Mazumdar & Ehrenfeld, 2005). The wear and tear of the lingering stress response within the body has a tremendous impact on physical and mental well being. The most common physical effects immediately following a traumatic experience are hypervigilance, generalized anxiety, inability to relax, difficulty sleeping, fatigue, headaches, backaches, and weight loss (van der Kolk, et al., 1996; Yehuda & Davidson, 2000, Naparstek, 2004). The body of a trauma survivor tends to stay on heightened alert for several days even after the environment has returned to normal.

Although the threat of danger has passed, the body continues to respond to neutral signals from the environment as though they were a threat. Studies in the field of trauma and physical health have shown noteworthy correlations between certain health problems and PTSD (Naparstek, 2004; Mazumdar & Ehrenfeld, 2005). Research has shown that extended periods of soaring cortisol levels suppress the immune system and grinds down the cardiovascular system, which leads to hypertension and coronary artery disease.

(Scaer, 2001; Mazumdar & Ehrenfeld, 2005). One large study showed that an astounding 57% of people diagnosed with fibromyalgia also suffered from PTSD (Sherman, Turk, & Okifuji, 2000). Only 8% of the general population has fibromyalgia. Another American study of fibromyalgia patients found a 56% rate of PTSD among the patients (Naparstek, 2004), and yet another study confirmed that 57% of the fibromyalgia patients reported a history of physical and/or sexual abuse in childhood (Alexander, et al., 1998).

The last few decades have shown an increase in a category of physical health problems that have been categorized as “functional diseases” because medicine cannot find any obvious physical causes (Naparstek, 2004; Mazumdar & Ehrenfeld, 2005). These functional diseases are highly linked with PTSD (Naparstek, 2004; Pall, 2001). Diseases such as chronic fatigue syndrome, chemical sensitivity, irritable bowel syndrome, fibromyalgia, pelvic and low back pain, interstitial cystitis, reflex sympathetic dystrophy, inflammatory bowel disorder, and migraines are associated with PTSD (Pall, 2001, Naparstek, 2004). Unfortunately, many of the people showing up with these debilitating conditions are being labeled as “malingers, hypochondriacs, and neurotic attention seekers” (Naparstek, 2004, p 79). However, closer study reveals that these conditions are connected with dysfunctions in the autoimmune system, the very system that is so notably influenced by the biochemical reactions of late-stage chronic PTSD (Naparstek, 2004).

Cognitive Effects of Trauma

Cognitive difficulties immediately following a traumatic experience include recurring intrusive thoughts, flashbacks, memory lapses, and problems with concentration and sustained attention (Naparstek, 2004; Levine, 2005; van der Kolk, et al., 1996). Many

trauma survivors also have a difficult time learning and retaining new information, especially verbal data. Victims report having difficulty making daily decisions, and many report feeling overwhelmed by the normal tasks of living (Naparstek, 2004). In general, individuals with chronic PTSD note deterioration in their ability to sort out important information from that which is less significant. Naparstek (2004) describes the problem as one where "It becomes hard to ignore what is unimportant, and over time all sorts of things might be noticed and reacted to with equal emphasis" (p.81). Therefore, over time the things that set off intrusive memories and flashbacks can become subtle and only remotely connected with the trauma, where even irrelevant stimuli can trigger reminders of the trauma (Naparstek, 2004). This inability to discriminate may also lead to a narrow focusing that which is negative so much that positive aspects are not noticed or appreciated.

Traumatic memories are processed and stored differently than memories of normal events (van der Kolk, et al., 1996; Naparstek, 2004; Goleman, 1992). Normal memories are encoded in a way that makes them amenable to verbal discussion (Naparstek, 2004). Traumatic memories however, are experienced as "emotions, sensations, and physical states" (Rothschild, 2000; van der Kolk, et al., 1996). Naparstek (2004) describes them as being "like some undigested lump of personal history, stored separately, in a primitive compartment and unintegrated into the survivor's verbal and cognitive understanding of himself" (p.82). These multi-sensory memories and body sensations are experienced as immediate and extremely intense. Thus, the individual feels transported back in time to the scene of the trauma, complete with all the terrifying feelings and sensations (Naparstek, 2004; van der Kolk, et al., 1996). Conversely, normal memories are easily

articulated in a coherent story form and tend to alter and fade over time. Traumatic memories remain “permanent and unwavering” (Naparstek, 2004; van der Kolk, et al., 1996). Even the nightmares of individuals with PTSD repeatedly rerun the same traumatic themes (van de Kolk, Blitz, Burr, Sherry, & Hartman, 1984). These differences are due to the biochemical flood that rushes through the brain, deeply imprinting the memory, at the time of the original traumatic event. This process “hardwires” the brain, seeking to protect the organism in case the threat to life is encountered again in the future. Moreover, this trauma-induced hardwiring works much like a reflex, instantly and in a manner that bypasses higher cognitive functions altogether (Naparstek, 2004).

Paradoxically, some survivors may experience amnesia about the traumatic event. This is especially common among survivors of childhood sexual abuse (Naparstek, 2004). In general, the younger the person at the time of the traumatic event and the longer and more severe the abuse, the more the likelihood the individual will experience amnesia in adulthood (Briere, J. & Conte, J., 1993). To compound these difficulties, an odd paradox occurs for many trauma survivors. While the survivor experiences vivid and frightening fragments of memory they may also have great difficulty communicating what happened in words and thoughts (Naparstek, 2004). Moreover, PET scans show a loss of oxygen to the verbal centers of the brain during flashback experiences (van der Kolk, et al., 1996). Therefore, these survivors are stuck with an overwhelming sense of terror, yet are unable to make cognitive sense out of the experiences (Naparstek, 2004).

These cognitive effects are directly connected to the impact of trauma on the brain (Naparstek, 2004; van der Kolk et al., 1996). This deep etching of traumatic memories stems from the amygdala and the biochemical cascade that blasts through the brain

during the traumatic event. It is believed that this hard wiring occurs because of critical changes in the locus ceruleus (Naparstek, 2004, van der Kolk et al., 1996; Goleman, 1995). Because of these processes, even a mild or neutral signal from the environment that is suggestive of the original event (a loud noise, a smell, a touch, a visual image) can trigger hyperarousal, and thereby create more distress and further the cycle of alarm (Naparstek, 2004).

Emotional Effects of Trauma

Herman, author of *Trauma and Recovery* (1992), describes the level of terror and rage experienced by survivors as being so far beyond the everyday experience of fear and anger that it engulfs the individual's capacity to bear in a "feeling sense". This type of terror cannot easily be "contained and communicated" in a direct way, but may better be described through symbols such as found in art, poetry, drama, and story (Naparstek, 2004). Underlying PTSD can be a fountain of desolation and sorrow that colors every awareness, response, and emotion experienced by survivors. The perception of the world as it was previously known before the trauma may no longer exist, and any sense of justice and security may have been shattered by the trauma. Losses experienced from a traumatic event can be both great and small. During trauma, a victim may be physically injured, disfigured, and even disabled for life. The view of the self as capable and competent may be crushed. Survivors may lose their job, home, possessions, and even loved ones. A survivor of rape described the depth of her loss as there being "no anchor, no protector, no mother, no safe place to contain the feelings" (Naparstek, 2004, pg 98).

In addition to the emotions of despair and grief, survivors of trauma frequently experience terror, helplessness, and loss of control (Naparstek, 2004, Levine, 2005, van

der Kolk et al., 1996). Emotions of irritability, anger, and even total rage may be frequently experienced. These feelings may be directed towards others, or at the self through self-injurious behaviors (Naparstek, 2004, Herman, 1992). As mentioned earlier, survivors of trauma may vacillate between overwhelming emotions and a sense of inner deadness. Many have described this as a “hollow, apathetic, empty, and lifeless” existence (Naparstek, 2004, pg 107). Many survivors struggle with an intense sense of inner shame. Author and psychiatrist J. Herman (1992) describes this corrosive sense of shame:

Whatever new identity she develops in freedom must include the memory of her enslaved self. Her image of her body must include a body that can be controlled and violated. Her image of herself in relation to others must include a person who can lose and be lost to others. And her moral ideals must coexist with knowledge of the capacity for evil, both within others and within herself. If, under duress, she has betrayed her own principles or has sacrificed other people, she now has to live with the image of herself as an accomplice of the perpetrator, a ‘broken’ person. The result, for most victims, is a contaminated identity. Victims may be preoccupied with shame, self-loathing, and a sense of failure (pg 93-94).

This deep sense of being flawed and set apart from others may be accompanied by an enormous sense of despair and hopelessness. Some survivors have stated that they feel as though they have witnessed and experienced the world in a way that is “fundamentally different” from that of other people (Herman, 1992). Furthermore, a survivor’s ability to trust themselves and others may be deeply wounded. Moreover, hiding this inner sense of

being defective and contaminated, and trying to act as though everything is fine may serve to exacerbate the sense of loneliness, sorrow, and anger experienced by many survivors (Herman, 1992; Naparstek, 2004).

Behavioral Effects of Trauma

The behavioral symptoms of PTSD often serve to ignite the cycle of hyperarousal and can be puzzling to those in relationship with survivors, as well as the survivors themselves (Naparstek, 2004). As a way of protection many individuals with PTSD may become more isolative and avoidant of even normal living activities and experiences of emotion. The term “dialectic of trauma” refers to the opposing psychological states that are the “most prominent characteristic” of trauma (Herman, 1992). Experiencing at one moment a sense of overwhelming danger and the next moment dissociation and numbness, survivors may try to avoid any kind of feelings. Therefore, survivors often have difficulty building and maintaining close relationships. Likewise, in their “extreme vulnerability, survivors may become overprotective and controlling of those they love, creating additional relationship problems” (Naparstek, 2004, p 132). This “dialectic of trauma” serves to exacerbate the survivor’s sense of loneliness, unpredictability, and helplessness, thus becoming a self-perpetuating feedback loop (Herman, 1992; Naparstek, 2004).

Traumatized people also run a greater risk of developing compulsive behaviors as another method of numbing-out and controlling the hyperarousal and intrusive symptoms (Naparstek, 2004; van der Kolk et al., 1996). A study of 100 combat veterans with severe PTSD revealed that 85% developed significant alcohol and drug problems, where as only 7% used alcohol or drugs before the war (van de Kolk et al., 1996). A variety of illegal

drugs may be used in order to quiet feelings of anger and aggression, achieve a jolt of aliveness, or to battle problems with sleep, nightmares, and other intrusive symptoms (Naparstek, 2004). While these substances may provide some initial relief, they are also highly addictive, and ultimately compound the difficulties and dysfunction experienced by the survivor. Other types of problematic behaviors may include compulsive busyness, overeating, anorexia, bulimia, and obsessive sexual activity (Lating, O'Reilly & Anderson, 2002; Naparstek, 2004).

Some traumatized people, especially those with complex PTSD, come to believe and behave as though they are helpless and lack the ability to make choices and decisions to positively impact their lives (Naparstek, 2004; van der Kolk et al., 1996). This symptom, often called learned helplessness, is not surprising considering that the core of trauma is a sense of overwhelming powerlessness. Unfortunately, this learned helplessness might take root in the survivor's worldview and become a major deterrent to healing (Naparstek, 2004). Furthermore, this helpless view of life may mark the survivor as an easy victim, making them vulnerable to further victimization from bosses, teachers, spouses, friends, and co-workers.

Ironically, some traumatized people are drawn to situations that repeat some aspect of the original trauma, for example, an abused child that becomes a stripper or prostitute in adulthood (Herman, 1992; Naparstek, 2004; van der Kolk et al., 1996). These re-enactments may also manifest in relationship dynamics, body sensations, and even such repetitive and seemingly random events as recurring accidents (Naparstek, 2004). Traumatized children often re-enact the trauma through play activity. Clinicians and researcher of trauma often label this tendency to re-enact the trauma as one of the most

intriguing and complex symptoms (Levine, 2005). It is important to note that these situations are not usually sought out consciously, but rather seem to work through some unconscious mechanism, and tend to have a “driven tenacious quality” (Naparstek, 2004, van der Kolk et al., 1996). Biophysical data suggests that this type of re-enactment behavior may be due to neurophysiological conditioning that is set in the biochemistry of the traumatized brain (Naparstek, 2004; van der Kolk, et al., 1996). Survivors may become “addicted to their own biochemicals and are therefore provoking doses of their own stress neurohormones” (Naparstek, 2004, pg 135).

Author and psychiatrist, Judith Herman (1992) describes compulsive self-injury as one of the “most dysfunctional self-soothing mechanisms found in trauma survivors with PTSD” (p.108). Like other compulsions, it is believed to be an attempt to regulate emotions. Compulsive cutting, scratching, burning, hair pulling, and other forms of self-injury represent a rather paradoxical form of self-protection. Generally, self-mutilation is preceded by a dissociated state of numbness, and accompanied by a compulsion to attack the body. Many survivors who self-injure report little or no pain, and state that the experience produces a sense of release and calm (Herman, 1992).

Spiritual Effects of Trauma

“Spirituality is an essential component to human happiness and mental health” (Elkins, 1999, p 44). The word comes from the Latin root *spiritus*, which refers to the breath of life. Spirituality relates to the ability to live with passion, depth, and meaning, and it is intrinsically tied to the ability to open one’s heart and embrace a sense of “awe, reverence, and gratitude” (Elkins, 1999, p 45). A person’s spirituality forms the framework through which they make sense of their lives and the world around them.

Through this framework people develop a set of beliefs and principles about themselves, others, the world, and what constitutes right and wrong.

Trauma initiates a crisis of meaning, and finding a way to resolve this crisis is an essential component to healing from PTSD and returning to a state of vitality (Naparstek, 2004). Trauma by its very nature is an assault on the human spirit. Traumatic events often lead to major changes in the survivor's worldview so that the most basic beliefs about "meaningfulness, goodness, and safety" are altered (Drescher, & Foy, 1995). For individuals whose core values are founded on specific spiritual beliefs, traumatic events may lead to deep questioning about the fundamental nature of God and even life itself. Traumatic events may disrupt one's identity and lead to doubting all that was once believed to be true (Herman, 1992). Experiences of trauma may damage trust, faith, values, beliefs, and self-worth (Naparstek, 2004; Drescher & Foy, 1995; Nelson-Pechota, 2004). Individuals who are unable to resolve challenges to their moral and spiritual beliefs find themselves in a state of spiritual isolation, feeling alienated and alone in a terrifying and meaningless world.

Perspectives on Treatment

There are a variety of modalities used to treat PTSD. In general terms, treatment may include education, support, symptom management, lifestyle modification, and various methods of helping the survivor work through inner conflicts associated with the trauma (Naparstek, 2004; Yehuda & Davidson, 2000; van der Kolk, et al., 1996). The scope of PTSD treatment is beyond the range and purpose of this paper; therefore, this section of the paper will provide only a very brief overview of some of the more traditional treatment modalities.

Pharmacology

There are several principal goals of pharmacology in the treatment of PTSD (Yehuda & Davidson, 2000). Medications are employed to help reduce the frequency and intensity of intrusive symptoms. Medications may also help reduce avoidance behavior, depression, numbed mood, psychotic or dissociative symptoms, as well as impulsive aggression against self and others (van der Kolk, et al., 1996; Turner, 1999; McNamara, 2004). Antidepressants, particularly serotonin reuptake inhibitors, have shown effectiveness in treating PTSD (Davidson, Rothbaum, & van der Kolk, et al; Foa et al., 2000; Foa et al., 1999). Tricyclic antidepressants and monoamine oxidase inhibitors are used as a second line of treatment for PTSD. Other medications used include anticonvulsants, mood stabilizers, anxiolytics, and other antidepressants (Yehuda & Davidson, 2000). In clinical practice, there is a general tendency to use more than one medication in the treatment of PTSD, as well as, combining medications with psychological counseling (Yehuda & Davidson, 2000).

Cognitive Behavioral Therapy

Cognitive-behavioral therapy (CBT) has been proven very effective in the treatment of PTSD (NCPTSD, n.d.). There have been more published studies on the effectiveness of CBT than any other treatment for PTSD (Dattilio & Freeman, 2000). CBT focuses on changing thoughts and beliefs in order to change emotions and behaviors. CBT can be used effectively to reduce distressing trauma-related thoughts (survival guilt, self-blame, feelings of personal inadequacy, or worries about the future). Modifying thoughts about these and other trauma-related issues can reduce PTSD symptoms and improve mood and functioning (Lovell, Marks, & Noshirvani, 2001). One form of CBT, known as exposure

therapy is commonly utilized with traumatized people (van der Kolk, et al., 1996). This process involves several important steps: 1) developing a trusting therapeutic relationship, 2) establishing a safe environment, and 3) soliciting detailed and emotionally provocative trauma-related information from the survivor (Dattilio & Freeman, 2000). The goal of exposure therapy is to help the client confront the trauma material and learn to control the overwhelming fear and distress that accompanies PTSD. CBT also teaches relaxation skills for coping with anxiety, anger management, relapse prevention, and building interpersonal skills (Dattilio & Freeman, 2000).

Psychodynamic

In 1895, Breuer and Freud based their studies on hysteria on the idea that traumatic life events can cause mental disorders (Breuer & Freud, 1955). In general, the psychodynamic approach is based on the belief that dealing with unconscious mental and emotional conflicts can help trauma survivors better cope with the effects of trauma. Psychodynamic treatment explores trauma by probing fears and defense mechanisms used in connection to the traumatic event (NCPTSD, n.d.). There is a particular interest in these emotional conflicts as they relate to the early life experiences. Psychodynamic treatment generally involves frequent sessions and may be carried out on a short or long term basis. Psychodynamic treatment can also be utilized in various treatment settings such as group and family, as well as on an inpatient or outpatient basis (NCPTSD, n.d.).

Eye Movement Desensitization and Reprocessing

Francine Shapiro developed Eye Movement Desensitization and Reprocessing (EMDR) in 1987 (as cited in Herbert & Mueser, 1995). It is a relatively new form of treatment for trauma. EMDR brings together various aspects of exposure therapy,

cognitive-behavioral therapy, and specialized eye movements. EMDR was specifically designed to lessen the physiological and psychological distress associated with traumatic memories (Grand, 2001). The developer of EMDR proposed that it helps “access and process” traumatic memories in order to bring them to an “adaptive resolution” (Grand, 2001). During EMDR, the patient is asked to identify: 1) a disturbing image that is associated with the traumatic event; 2) body sensations associated with the traumatic event; 3) a self-blaming thought (in concise words) that expresses what the survivor believes about the trauma; and 4) a positive cognition with which to replace the self-blaming thought (Grand, 2001). The client is then asked to hold these four elements in their mind while following the clinician's moving finger back and forth for about 20 seconds (Herbert & Mueser, 1995). In further tracking episodes, the survivor concentrates on various changes that may have occurred through the sessions. Tracking episodes are repeated until the client can deal with the traumatic material in a calm and relaxed state, and can replace the negative cognitions with those that are more positive in nature. Additional tracking episodes may be used to reinforce positive cognitions (Grand, 2001). This method, while highly proclaimed by many practitioners, has not been scientifically validated (Herbert & Mueser, 1995).

Group Counseling

Group counseling is a popular method of treating PTSD, and is believed by some to be the ideal therapeutic setting for survivors of traumatic experiences (NCPTSD, n.d.). Group treatment provides a sense of belonging and connectedness that may be difficult to achieve in other treatment formats. Over time, as the cohesion develops within the group, and members gain greater trust among one another, survivors may be able to share their

deepest concerns while being supported and encouraged by others who have had similar experiences (NCPTSD, n.d.). Group counseling is also versatile in that it may draw from any theoretical discipline.

Psychosocial

Addressing psychosocial issues in treatment has been found to benefit individuals suffering with PTSD (Wang, Wilson & Mason, 1996). Clients with PTSD often develop problems in multiple life areas such as marriage, parenting, social interactions, and vocation. These survivors often benefit from case management and psychosocial interventions that focus on teaching coping skills (NCPTSD, n.d.).

Imagery Based Therapies

Over the past two decades, various types of imagery-based therapies have been developed for treating PTSD (Naparstek, 2004; Achterberg, 1984; Grand, 2001; Levine, 2005; Rothschild, 2000). These types of therapies are highly structured and focused, and have been shown to be “effective, practical, efficient, fast-acting, and accessible” to many survivors of trauma (Naparstek, 2004). The remainder of this paper will expand on the benefits and uses of guided mental imagery in the treatment of PTSD.

Guided Imagery: A Natural Bridge to Recovery

As discussed, various approaches have been employed in the treatment of PTSD. Traditional treatment has primarily emphasized exposure to trauma material and talk therapy. However, Naparstek (2004), author and therapist specializing in treating trauma, believes that “pushing people to talk about traumatic experiences at the beginning of treatment before teaching appropriate self-soothing skills may actually do more harm” than overall benefit (p. 157). Individuals with PTSD are extremely sensitive to cues that

remind them of the trauma. They may also have significant difficulty utilizing higher brain functions due to emotional hijacking and dysregulated stress hormones (Naparstek, 2004; Goleman, 1995, van der Kolk et al., 1996). The biochemistry that floods the brain and body during trauma works to inhibit higher brain functions such as language and cognition, while intensifying more primitive parts of the brain that process images, sensations, perceptions, emotions, and kinetic movement (Naparstek, 2004). With contemporary advances in the study of the neurobiology, science has discovered that the normal stress response is not properly extinguished in individuals with PTSD (Levine, 2005; Yehuda & Davidson, 2000; Naparstek, 2004). Furthermore, a prolonged continuation of this stress response often leads to an inappropriate “linking” of the traumatic memory with distress, and may then set off a surge of “secondary biological adaptations” (van der Kolk et al., 1996; Naparstek, 2004). Therefore, from a clinical point of view, reducing the distress associated with traumatic reminders and teaching survivors self-soothing skills, would be of primary importance in an effective and humane approach to treatment. The remainder of this paper examines guided imagery as an effective method of teaching self soothing skills as well as effectively addressing the impact of trauma on the survivor’s brain, body, cognitions, emotions, behavior, and spirituality.

What is Guided Imagery

The body of research available on the benefits of guided imagery is too extensive to include in this paper. To site a few of the benefits, studies have shown that imagery reduces anxiety and depression, lowers blood pressure, reduces cholesterol, speeds up

healing, strengthens short-term immune functions, reduces pain, and increases comfort (McKinney, Antoni, Kumar, & Tims, 1997; Bennett & Carroll, 1990; Gruzelier, 2002).

Guided Imagery is a gentle and calming technique that “focuses and directs the imagination” (Naparstek, 1994). Unfortunately, the terms visualization and imagery are misleading because the process utilizes all of the senses including sight, smell, sound, touch, and even emotions (Naparstek, 2004). Work inspired by Roger Sperry, investigated the cognitive functions of the right and left hemispheres of the brain. He concluded that imagination and mental imagery, like intuition, music appreciation, and spatial awareness is a right-brain function (Seaward, 2004). Studies have shown that the ability to access and employ right-brain functions is an important component in dealing with stress (Naparstek, 2004; Seaward, 2004). Since guided imagery is a right-brained activity, it utilizes the more primitive, sensory, and emotion-based channels of the brain and nervous system that are key components in PTSD (Naparstek, 1994). It also taps into the sensing, perceiving, feeling and information gathering abilities rather than the higher cognitive functions of thinking, analyzing, judging, and deciding governed by the left brain (Napersteck, 2004). Fanning (1988) asserts that one of the greatest strengths of visualization lies in its ability to reduce sensory information, and to “replace threatening stimuli” with those that are “more pleasurable” (p.69). Proponents of guided imagery also assert that tapping into the right brain allows a convenient bypassing of the critical, judging components associated with left-brain functions (Naparstek, 2004). This may provide a way of sidestepping the psychological resistance associated with fear, shame, and worry that often interfere with the effective treatment of PTSD. The fact that guided

imagery has a body-based focus is what makes it a powerful tool for treatment and healing (Naparstek, 2004; Phillips, 2000).

Three Principles of Guided Imagery

Mind body connection.

Guided imagery operates from three basic principles. The first underlying principle is that the mind and body are “intrinsically connected” (Naparstek, 1994). Images created in the mind are experienced as being as real as if they were actual events (Seaward, 2004; Naparstek, 2004). The mind has an especially strong ability to cue the body when the images evoked include sights, sounds, smells, taste, touch, and emotions (Naparstek, 1994). This is the very reason that traumatic memories have the ability to bring about such intense physical distress. These types of sensory images are the original language of the body, and one it understands instantaneously, even before higher cognitive functions have the time to commence (Goleman, 1995, Naparstek, 2004).

The power of the altered state.

The second underlying principle is that the altered state generated by guided imagery lends itself more rapidly to “healing, learning, and performance” (Achterberg, 1984; Bryant & Harvey, 1996; Epstein, 1989; Naparstek, 1994). This type of altered state is a condition of “relaxed focus” (Naparstek, 2004). This peaceful focus produces a calm but energized alertness that creates a constructive shift in brainwaves and biochemistry (Naparstek, 1994). As attention is concentrated in this type of flow experience, there is a heightened sensitivity to the object of attention, and a decreased awareness of other things occurring in the environment (Achterberg, 1984; Epstein, 1989, Naparstek, 2004).

Guided imagery employs this altered state in a way that taps into a survivor's internal strength and skills (Napersteck, 1994).

Locus of control.

The third underlying principal is often referred to as the locus of control factor.

Having a sense of being in control is associated with higher optimism, self-esteem, and the ability to tolerate pain, uncertainty, and stress (Napersteck, 1994). Research in ego psychology asserts that individuals who have a sense of mastery over the environment feel better about themselves and tend to perform better (Cordier, 1978; Phillips, 2000). Conversely, a sense of helplessness such as experienced by trauma survivors lowers self-esteem, ability to cope, and optimism about the future (Napersteck, 1994).

The Benefits and Power of Mental Imagery

Mental imagery as the primary language of comfort.

One of the chief reasons mental imagery is so powerful and effective is because it is the primary human language (Naparstek, 2004). Internalized mental imagery has served to evoke the memory of comfort for people since early infancy. Infants often utilize transitional objects, such as thumb sucking, prized blankets, and cherished teddy bears for self-comforting (Mahler, Pine & Bergman, 1975; Naparstek, 2004)). These objects are among the first symbols infused with the ability to sooth and comfort. They are the first of many other forms of self-soothing later used in adult life, such as the memory of a loved one, art, music, literature, and according to some, even religious experience (Napersteck, 2004; Winnicott, 1989). Internalized images of comfort are rich with personal meaning and can include many subjectively significant components such as an approving smile from a parent, the smell of a grandmother's perfume, the sound of a

running brook, the feel of the sun on one's skin, a loving phrase, or the memory of a soothing touch. These multi-sensory images attend a person throughout life and can be evoked during times of fear, pain, and stress (Napersteck, 2004). Victor Frankl (1959), Austrian psychiatrist and founder of logotherapy, described how evoking the image of his beloved wife served to calm and strengthen him while enduring the horror and suffering of his years in Auschwitz.

My mind clung to my wife's image, imaging it with an uncanny acuteness. I

heard her answering me, saw her smile, her frank and encouraging look.

In a position of utter desolation, when man cannot express himself in

positive action, when his only achievement may consist in enduring

suffering in the right way – an honorable way – in such a position man

can, through loving contemplation of the image he carries of his beloved,

achieve fulfillment (p.57).

The benefits of imagery on the limbic system and biochemistry.

As discussed earlier in this paper, traumatic events leave distinctive marks on the brain, where "cognition and behavior are mediated by more primitive parts of the brain at the expense of abstract thinking and the absorption of language and ideas" (Napersteck, 2004 p.84). Only when the brain and body has achieved some level of calm, such as can be achieved through guided imagery, can the brain begin to focus on higher functions such as language and cognitive problem solving abilities (Naparstek, 2004). Therefore, interventions that are based solely on talking and higher cognitive functions may be ineffective in addressing symptoms and behavior that is driven chiefly by the primitive brain and the overwhelming emotion of terror (Naparstek, 2004). PET scans used in

recent trauma research reveal that trauma survivors have greater sensitivity and reactivity in the amygdala and its surrounding neural network, all parts of the brain that process emotion, sensations, and images (Napersteck, 2004). These phenomena result in survivors being especially attuned to the very essence of imagery. Therefore, “guided imagery is an intervention of choice, perfectly geared to take advantage of that which is most accessible in the wiring of a survivor” (Napersteck 2004, p. 157).

Trauma survivors also experience intense ebb and flow in biochemistry that may result in multiple physical, mental, and emotional problems over time. Mental imagery like other forms of meditation is proven to gently re-establish biochemical balance within the body (Napersteck, 2004; van der Kolk, et al., 1996; Rothschild, 2000; Seaward, 2004).

Imagery and regaining locus of control.

One of the most damaging aspects of trauma is that of being helpless. Helplessness is a significant part of the original trauma experience as well as when the trauma and its symptoms are replayed through flashbacks, intrusive symptoms, nightmares, and memory loss (Naparstek, 2004). Helping survivors reclaim a sense of safety and control is the first step in trauma recovery. Guided imagery facilitates and enhances this sense of inner control as the user decides what, when, and how much they want to experience at any time. Furthermore, mental imagery helps restore mastery and control by providing an effective method of self-comfort during times of distress brought on by intrusive symptoms (Napersteck, 2004, Napersteck, 1994).

Imagery and the two sides of dissociation.

As discussed earlier in this paper, dissociation at the time of the traumatic experience is highly correlated with the development of PTSD. Traumatized people dissociate easily, and often move in and out of this state of conscious awareness when confronted with things that are suggestive of the trauma (Napersteck, 2004; Herman, 1992; van der Kolk, et al., 1996). This type of dissociation happens involuntarily and while serving a protective function to the overwhelmed individual, it has the negative effect of leaving the survivor disconnected from their own inner reality, other people, and the surrounding environment. Guided mental imagery is a “benign form of intentional dissociation directed towards calming the traumatized mind and body” (Naparstek, 2004, p 162). Since survivors are often quite familiar with dissociation means they are prime candidates for guided mental imagery. In addition, the conscious practice of guided mental imagery facilitates the survivor’s ability to discriminate between when they are in an involuntary dissociative state and when they are fully aware and present (Napersteck, 2004). Since guided imagery focuses largely on physical sensations, it also helps the survivor combat the “out of the body” sensation associated with dissociation. Focusing on the breath, and systematically moving through each area of the body helps survivors reconnect to their physical body in a pleasant manner that off sets the accustomed distress (Napersteck, 2004). Moreover, mental imagery and meditation provide the ability to deliberately detach from feelings, thoughts, and sensations in a positive manner that can be helpful rather than harmful. Bellruth Napersteck (2004) likens this to the Buddhist concept of detachment that develops the “observer self”, a state of mindfulness that allows one to

watch their own suffering with a “natural, detached, curiosity, going from moment to moment with compassion” for ones self (p 163).

Imagery and the power of symbol and metaphor.

Guided mental imagery is a right-brain activity that is rich in symbol, metaphor, and subjective meaning. Since some survivors find it difficult to talk about the traumatic event and find the accompanying emotions and physiological responses overwhelming, symbol and metaphor may be an effective method of accessing the trauma without undue distress (Naparstek, 2004). The symbols and metaphor used in guided mental imagery are full of meaningful significance that bypasses direct language, analysis, and facts. Therefore it may be a gentle and effective method of gaining access to the deeper injuries caused by trauma (Napersteck, 2004).

Additional benefits of imagery.

Guided imagery also helps the traumatized parts of the thinking brain (Napersteck, 2004). As discussed earlier in this paper, the left-brain functions such as language and logical analysis can be overwrought by the traumatic experience. Survivors often have difficulty maintaining their attention and learning new information. Guided imagery employs the right side of the brain, taking the stress off the cognition and language centers, while also helping re-establish the ability to hold attention in a state of mindfulness (Naparstek, 2004).

Guided imagery also provides multiple benefits to the body (Naparstek, 2004; Seaward, 2004). It is known to increase serotonin levels in the bloodstream (Naparstek, 2004). Serotonin facilitates biochemical stability, which offsets the alarm and numbness cycle (Naparstek, 2004). Increased serotonin in the bloodstream also has a pain relieving

effect, which benefits survivors who suffer from chronic pain conditions (Napersteck, 2004).

Insomnia is another common feature of PTSD. In many survivors, guided imagery aids relaxing sleep with its calming sound, soothing pace, and use of symbols and images that help create a sense of safety. However, Napersteck (2004), cautions that some survivors who were traumatized by perpetrators through the use of soothing words and actions may find these elements unsettling, and are therefore contraindicated.

As previously discussed, trauma and its many challenges often initiates a crisis of meaning for many survivors. For some, guided imagery may also provide a bridge that facilitates spiritual healing. Guided imagery does not require religious belief, but it is compatible with religion (Naparstek, 2004). Moreover, its use of symbols and metaphor encourages the user to tap into their own unique and personal sense of spirituality.

Guided Imagery and the Stages of Healing

Guided mental imagery follows a stage theory of treatment. In general, stage theory proposes that trauma needs to be treated differently at different phases of the process. Methods and interventions that may be effective at certain stages of treatment may not be helpful at other stages, depending on the type of trauma, the survivor's unique needs, and other contributing factors (Naparstek, 2004; van der Kolk, et al., 1996). In her book entitled, *Invisible Hero's*, Bellruth Naparstek (2004) outlines three stages for applying guided mental imagery in the treatment of PTSD.

Stage one.

The first stage of healing consists of helping the survivor regain a sense of safety and control. While there is no firm timetable for the stages, in general, early stage imagery is

beneficial right after the traumatic event up to three to six months later (Napersteck, 2004). In this stage imagery provides simple and easy to follow, self-soothing tools. This type of imagery is less complex than imagery that may be helpful in later stages of healing (Naperstek, 2004). The goal of imagery in this stage is to divert the survivors' attention from intrusive thoughts and provide temporary relief from overwhelming distress (Napersteck, 1994). This type of imagery is full of simple, soothing, calming, and grounding messages of safety and well being. Napersteck (2004) writes that examples of this type of imagery includes creating a peaceful place, grounding awareness in the body, focusing the emotions, and eliciting a sense of protection and support. Once these important self-soothing skills are developed, stage-two imagery may be used. While discussing complex PTSD exceeds the purpose of this paper, it is important to note that individuals with complex PTSD need additional assessment in order design a treatment approach that meets their unique needs (Naparstek, 2004). Some of these survivors who have not developed adequate self soothing skills may need to begin with stage one imagery. Others, who possess the ability to self sooth, may benefit by beginning with stage two imagery (Naparstek; 2004).

Stage two. *When the individual is ready to move on to the second stage of healing, the therapist can begin with stage two imagery.*

The second stage of guided mental imagery treatment is called healing and integration. This stage can begin a few days or weeks after the trauma up to several months or years later (Napersteck, 2004). Simple stage-one imagery may still be used as needed to boost the already established skills of self-soothing and to facilitate a sense of safety. However, the second stage focuses primarily on deeper aspects of the trauma, going beyond managing symptoms to the "core of the trauma itself" (Naparstek, 2004). This stage

focuses on helping the survivor focus on deeper feelings, addressing the cognitions and beliefs resulting from the trauma, and unraveling the meaning that the trauma holds for them. Napersteck (2004) suggests that survivors obtain a qualified therapist at this stage of recovery, as this stage can be intense and difficult to manage alone. Napersteck (2004) writes that imagery for this stage of healing includes imagery to support awareness of feelings, facing anxiety, softening pain, easing depression, releasing grief, transforming symbols, working with an issue in the body, and healing trauma.

Stage three.

The third stage of utilizing guided mental imagery in treating PTSD entails clean up and renewal (Naparstek, 2004). Survivors who are ready for the third stage have already worked through a much of the trauma process. They have witnessed their own courage, strength, and endurance, and may have gained a greater sense of empowerment in their lives. At this point, the goal of is to clean up any remaining issues and help the survivor fully engage in the process of living (Naparstek, 2004). This stage is a good time to deal with any unresolved emotions from the trauma. It is also the time to build on the survivor's strengths, find healthy alternatives to managing moods, and build motivation for living a healthy and vital life (Napersteck, 2004). The type of imagery employed in the third stage of guided mental imagery treatment includes imagery for building confidence, addressing anger and forgiveness, deeper exploration of the self, and creating meaningful connections with others (Napersteck 2004).

Conclusion

Traumatic events are an ever-increasing part of our contemporary society. Statistics indicate that PTSD affects approximately 5-10 percent of the general population at any

given moment (Yehuda & Davidson, 2000). The disorder is chronic, and becomes progressively more complex and disabling if left untreated (Yehuda & Davidson, 2000). Untreated or inadequately treated PTSD exacts a high cost to individuals, families, and the whole of society. The disorder is associated with increased use of medical and psychiatric health services, impaired productivity and work attendance, problems in interpersonal relationships, increased disability, and diminished quality of life.

PTSD has distinguishing biological abnormalities that are related to an insufficient termination of the normal stress response. As the disorder progresses over time, it becomes increasingly multifaceted and debilitating as “secondary adaptations” become the most prominent symptoms and veil the link with the original traumatizing event (van der Kolk, et al., 1996). Studies have shown that PTSD can permanently change the structure of the brain, and initiate a crippling cycle of hyperarousal and numbness (van der Kolk, et al., 1996; Yehuda & Davidson, 2000).

Historically, treatment modalities have focused on a talk-therapy exposure based approach in treating PTSD. However, with new information coming out of the field of neurobiology, this approach is being questioned. Studies show that the impact of trauma on the left-brain functions often short-circuit the survivor’s ability to effectively process the trauma through language and analytical thinking (Naparstek, 2004). Furthermore, uncontrolled exposure to trauma material may be more harmful than helpful considering that traumatized people tend to have high levels of avoidance and are hesitant to expose themselves to these terrifying memories. Many survivors with PTSD have great difficulty approaching traumatic material directly as they become psychologically overwhelmed and physiologically flooded with terror. With this in mind, reducing the extreme

psychological and physiological distress associated with PTSD becomes one of the most important components of developing treatment that is effective, usable, and compassionate.

Although once considered an alternative approach, guided mental imagery is now finding scientific support. Research studies support the benefits of guided mental imagery on reducing anxiety and depression, lowering blood pressure, reducing cholesterol, speeding up healing after surgery, strengthening immune functions, reducing pain, and increasing comfort (McKinney, et al., 1997; Bennett & Carroll, 1990; Gruzelier, 2002). Guided mental imagery utilizes right brain functions that are believed to assist in dealing with stress, and have greater access and impact upon the more primitive sensory and emotion-based channels of the brain and nervous system (Naparstek, 2004). PTSD is a disorder that has significant impact on the physiology and the psychology of those with the diagnosis. Guided mental imagery with its body-based focus helps combat the intense physical distress as well as imbuing the user with a much-needed sense of control over their symptoms and course of treatment (Naparstek, 2004). Guided mental imagery helps soothe the traumatized brain, stabilize the biochemical cycle of hyperarousal, anchor awareness in the body, provide comfort, and touch the spiritual aspects of the person that have been wounded by the horror of trauma (Naparstek, 2004).

While studies have shown that various treatment modalities have significant value in the treatment of PTSD, the multidimensional nature of the disorder may call for a combination of several different approaches. The use of guided mental imagery appears to offer much to the overall treatment of PTSD, and may be effectively added as a core component to other treatment modalities. Finally, utilizing a stage theory of treatment

allows the development of comprehensive treatment plans that are individually designed for a particular client's needs at the various stages of healing.

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